<u>CIA Estimates of Soviet Defense Spending</u>

1.  The attached three memos were prepared by the Office of Strategic Research, CIA in response to a verbal request by Mr. Robert Ginsburg of the Domestic Affairs and Policy staff.  Because of the classification of Memorandum 2, the package is being sent to Mr. Stuart E. Eizenstat, Assistant to the President for Domestic Affairs and Policy, who has the required security clearances.

2.  The first memo addresses questions on the indicated paragraphs in a <u>Business Week</u> article in a quote-comment format and lays out some of the arithmetic. The second lists the sources of the new ruble price information.  The third memo discusses the effect of the upward revision of the ruble estimates on some important intelligence judgments regarding the Soviet military effort.

Comments on Selected Paragraphs
from 28 February *Business Week* Article
"The CIA's Goof in Assessing the Soviets"

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*Quote*

"*At this point* (late 1974-early 1975), *a joint CIA-Defense Intelligence Agency (DIA) task force was convened to review all available information, including some culled from the intelligence services of other NATO countries.* The resulting consensus appears to have involved a massive upgrading of the presumed quantity or quality of Soviet weaponry, since the procurement share of total estimated military outlays was doubled back to the 40% level of 1960. *At the same time, figures for other outlays were trimmed, so the total defense figure remained at about 6% of GNP, with the agency conceding that if a variety of estimation factors had all tended toward the low side, the true figure could range as high as 8%.*

Comment

There was no such task force convened in the period indicated, no extraordinary "review of all available in-information," no information "culled from the intelligence services of other NATO countries". What was underway at that time was the CIA's annual update of the defense spending estimates taking into account the new National Intelligence Estimates of Soviet defense programs and activities. These estimates were published in a classified report in March 1975. Whereas investment had accounted for 23 percent of total spending in the previous estimate for the year 1972, the comparable figure in the 1975 estimate was 27* percent--not 40 percent. In absolute terms, the 1975 estimate of Soviet investment spending in 1972 was about 25 percent above the similar figure in the 1973 estimate. New Intelligence Community estimates of the quantity and technical characteristics of Soviet weapons accounted for about half of this change. The remainder was due to new price information which indicated that our ruble prices for aircraft and missiles had been under-stated.

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*If NASA-type space activities are included the appropriate shares are 21 and 24 percent.

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The author arrived at the 40 percent figure through careless and superficial analysis. In Mr. Colby's 1974 Congressional presentation the investment accounting term is defined as "procurement of hardware and construction of facilities." In the classified CIA paper of March 1975, the definition of investment was expanded to include the purchase of spare parts and the repair of facilities. The change was made to reflect the CIA's understanding at that time of the Soviet accounting definition of investment.

Although a superficial comparison of titles does imply that the investment share increased from 20 to 40 percent and that other outlays (operating costs) were trimmed, even a cursory review of the materials would reveal that the definitions of the accounts in the two estimates are different and the comparison is not valid.

### Quote

"The agency's explanations so far are not adequate to account for the fourfold increase in the estimated cost of Soviet weaponry. This creates a strong presumption that the error was not limited to the CIA's underestimate of ruble prices in the Soviet defense sector. Quite possibly more fundamental errors are involved, such as underestimating the quantity or performance capabilities, or both, of Soviet weapons systems."

### Comment

The presumption is wrong. It flows from a lack of understanding of how the estimates are made. The costing process starts by defining the quantities and characteristics of the Soviet weapons systems. Dollar prices are then applied to the quantities. These prices are estimates of what it would cost in the US to produce the Soviet design using US manufacturing technology. The resulting dollar cost estimates are then converted into rubles using ruble-to-dollar ratios applicable to the given class of weapons. These ruble-to-dollar ratios are derived by comparing the estimated dollar costs and ruble prices of samples of military products on a category by category basis.

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Given this methodology, changes in the estimated quantity and characteristics of Soviet weapons are captured in both the ruble and dollar estimates but changes in ruble-to-dollar ratios impact only on the ruble estimate.

Such changes in the estimated quantity and characteristics of Soviet weapons were made in moving from the 1975 to 1976 estimates. These changes resulted in about a 15 percent increase in the dollar estimate of investment for the 1970-1975 period. Based on the same 1976 estimate of quantity and characteristics, however, the ruble estimate of investment increased over the 1975 estimate by 150 per cent (see below). Obviously, the bulk of this change was attributable to higher ruble-to-dollar ratios rather than changes in the CIA estimate of the quantity and characteristics of Soviet weapon systems.

### The Arithmetic of the Problem

The critic's conclusion that there was a fourfold increase in the Agency's estimate of Soviet spending for military investment is based on two premises.

Premise 1: The Agency doubled its estimate of total Soviet defense spending.

Premise 2: The investment share of total defense increased from 20 percent in the old estimate to 40 percent in the revised estimate.

In mathematical form, the premises and conclusion can be expressed as follows:

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Premise 1: $\quad TD^{76}_{72} = 2TD^{73}_{72}$

Premise 2: $\quad I^{73}_{72} = .2TD^{73}_{72}$

and: $\quad I^{76}_{72} = .4TD^{76}_{72}$

Then $\quad : \quad I^{76}_{72} = .4 \times (2TD^{73}_{72}) = .8TD^{73}_{72}$

Therefore: $\quad G(I) = \dfrac{I^{76}_{72}}{I^{73}_{72}} = \dfrac{.8TD^{73}_{72}}{.2TD^{73}_{72}} = 4.00$

Where: --TD is total defense spending
--I is military investment
--G(I) is the growth factor in I
--subscripts denote the spending year
--superscripts denote the year of the estimate

The numbers used by the critic are not correct. The 20 percent figure given by Mr. Colby in 1974 was based on a definition of defense which included NASA-type space programs while the 40 percent figure in the latest CIA estimate was based on a narrower definition of defense--one that excluded such space programs. The share for 1972 based on the 1973 estimate but calculated on the narrower definition of defense is 23.5 percent rather than 20. Likewise, the most recent CIA report did state that for the period since 1970--that is 1970-1975-- comparably defined investment spending was 40 percent of total outlays, but for the year 1972 the correct figure is 38.9 percent. Finally, total spending for 1972 was 207.0 percent higher in the 1976 estimate than believed in 1973.

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Employing the same notation used above, the logical argument can be presented in its corrected form:

Premise 1: $\quad TD^{76}_{72} = 2.07TD^{73}_{72}$

Premise 2: $\quad I^{73}_{72} = .235TD^{73}_{72}$

and: $\quad I^{76}_{72} = .389TD^{76}_{72}$

Then $\quad : \quad I^{76}_{72} = .389 \times (2.07TD^{73}_{72}) = .805TD^{73}_{72}$

Therefore: $\quad G(I) = \dfrac{I^{76}_{72}}{I^{73}_{72}} = \dfrac{.805TD^{73}_{72}}{.235TD^{73}_{72}} = 3.43$

A somewhat more representative case can be presented by repeating the exercise for the period of years 1970-1975 rather than the single year 1972. Such a procedure both eliminates some of the uncertainties involved in estimating exact year-to-year production flows and corresponds to the 40 percent figure for military investment cited in the 1976 CIA report. Unfortunately, because the published report of August 1973 included estimates only through 1972, such an exercise can only be performed for the 1970-1972 period. Using the standard notation:

Premise 1: $\quad TD^{76}_{70-72} = 2.02\ TD^{73}_{70-72}$

Premise 2: $\quad I^{73}_{70-72} = .269TD^{73}_{70-72}$

and: $\quad I^{76}_{70-72} = .396TD^{76}_{70-72}$

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Then $\quad : I^{76}_{70-72} = .396 \times (2.02TD^{73}_{70-72}) = .800TD^{73}_{70-72}$

Therefore: $G(I) = \dfrac{I^{76}_{70-72}}{I^{73}_{70-72}} = \dfrac{.800TD^{73}_{70-72}}{.269TD^{73}_{70-72}} = 2.97$

Finally, the difference between the two estimates--1973 and 1976--reflects the cumulative effects of three years of new intelligence information and analysis. Most of the increase in the CIA's estimate of Soviet defense spending in rubles took place between the 1975 and 1976 estimates. Using these two estimates, the entire 1970-1975 time period can be considered.

Premise 1: $TD^{76}_{70-75} = 1.89TD^{75}_{70-75}$

Premise 2: $I^{75}_{70-75} = .305TD^{75}_{70-75}$

and: $I^{76}_{70-75} = .400TD^{76}_{70-75}$

Then $\quad : I^{76}_{70-75} = .400 \times (1.89TD^{75}_{70-75}) = .756TD^{75}_{70-75}$

Therefore: $G(I) = \dfrac{I^{76}_{70-75}}{I^{75}_{70-75}} = \dfrac{.756TD^{75}_{70-75}}{.305TD^{75}_{70-75}} = 2.48$

Thus, the new CIA estimate in 1976 involved an upward revision in Soviet spending for military investment (1970-1975) of about 150 percent rather than the 300 percent implied in the article.

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## Quote

"But critics suspect that the agency's inability to
reconstruct earlier Soviet defense data reflects metho-
dological problems that <u>continue to produce underestimates</u>.
And some experts suggest that the Soviet military burden
has actually continued on a steadily rising course--to a
1975 GNP share of 14% to 15% from a 1960 level of 8% to
9%. This would mean that the Soviets have been placing
an increasingly high priority on military strength at the
very time when the superpowers were supposedly ushering
in a new period of detente."

## Comment

The CIA does its estimates of Soviet defense spending
and GNP in <u>constant 1970 price terms</u>. The current estimates
indicate a <u>defense share in GNP of 11 to 13 percent</u> in the
1970s. The rate of growth in defense spending in the 1970s
is estimated at 4-5 percent per year, or slightly faster
than the 4 percent growth rate in GNP. This difference in
growth rates is not sufficiently precise or large enough
to indicate any substantial upward movement in the share
of GNP devoted to defense.

While the work has not yet been completed, prelimi-
nary calculations indicate an annual rate of growth in
defense spending (constant 1970 prices) in the 1960s on
the order of 5 percent per year, roughly the same as that
of GNP. This indicates a relatively constant share of GNP
devoted to defense in that period.

As indicated in our 3 March memorandum, although our
analysis of new information and our data base are far from
complete, we are confident that the new estimates of
Soviet defense spending are of the right order of magnitude.
We expect further improvements as the analysis continues
and other new data are acquired. We do not expect these
revisions to be of such a magnitude, however, as to affect
our basic understanding of the impact of defense on the
Soviet economy.

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## The Effect of the New Estimates of Soviet Defense Spending in Rubles on Some Important Intelligence Judgments Regarding the Soviet Military Effort

The new understanding of Soviet defense expenditures in rubles has not affected our appreciation of the magnitude of the Soviet defense effort in terms of dollar costs or the capabilities of Soviet forces. It has changed some important intelligence judgments regarding the efficiency of the defense sector of the economy, the impact of defense on the economy, and the degree of committment of the Soviet leaders to defense.

## Efficiency of Soviet Defense Industries

The Soviet defense industries are far less efficient than previously thought. The knowledge that the ruble prices of Soviet weapons of known physical and performance characteristics are substantially higher than we thought leads directly to the conclusion that the Soviets are less efficient in producing these weapons than was estimated. This, of course, does not mean that our perception of the capability of the Soviets to produce weapons has changed, only that the amount of resources that they have devoted to acquiring their defense capability is greater.

## Impact on the Economy

The impact of defense on the Soviet economy is greater than we thought. Previous estimates implied that defense claimed a gradually declining share of GNP (constant 1970 prices), falling from 8-10 percent in the early 1960s to 6-8 percent in the mid-1970s. The new estimates of Soviet defense spending are not only larger but also grow faster than the earlier estimates. As a result, the implied share of defense in GNP is greater--11-13 percent--and does not change substantially over the 15 year period.

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## Commitment of Soviet Leaders to Defense

The previous estimates implied that, because of a comparative advantage in producing military products, the Soviet leaders had been able to effect their arms buildup with a share of national product about the same as that devoted to defense in the US. Our perception of a much heavier and undiminishing defense burden implies a deeper commitment to defense programs.

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MEMORANDUM FOR: The Honorable Stuart E. Eizenstat
Assistant to the President for Domestic
Affairs and Policy

    The attachment was prepared in the Office
of Strategic Research in response to a request
by Robert Ginsburg of your staff. The office
would welcome the opportunity to discuss the
matter further with you. If you wish to do so,
please contact

    Please note that Mr. Ginsburg does not have
the clearances necessary for access to memorandum
No. 2 in the attachment.

    I am also sending a copy of this response to
Rick Inderfurth at the NSC Staff.

/s/ Stansfield Turner

STANSFIELD TURNER
Admiral, U. S. Navy
Director, Central Intelligence Agency
Date

1 APR 1977

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MEMORANDUM FOR: Mr. Rick Inderfurth
Special Assistant to the President
for National Security Affairs

    Attached for your information is a copy
of a memorandum prepared in response to a
request from Robert Ginsburg of Stu Eizenstat's
staff.

/s/ Stansfield Turner

STANSFIELD TURNER
Admiral, U. S. Navy
Director, Central Intelligence Agency

1 APR 1977

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